

# Moving Money

*Banking and Finance in the  
Industrialized World*

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# 1 Capital scarcity, capital mobility, and information asymmetry: a survey

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Finance is a rich field of study, pooling contributions from historians, political scientists, and economists. My goal is not to draw up an exhaustive inventory of the existing literature, but merely to situate the approach adopted in this book. I successively look at (1) the historical debate on capital scarcity, on which I offer a new perspective; (2) the use by political economists of the notion of capital mobility, which I try to clarify; and (3) the economic literature on information asymmetry, on which I build my argument.<sup>1</sup>

## **Capital scarcity**

In an article published in 1952, Gerschenkron provided the most ambitious explanation yet offered of why financial structures differ across nations. The more capital was needed in a short amount of time, he argued, the less equity markets could cope with the task of allocating long-term financial capital; instead, banks and state had to step in. Hence the “orderly system of graduated deviations from [the first] industrialization”:<sup>2</sup> British industrialization was self- and market-financed, manufacturers ploughing back profits into their own factories; French industrialization (the 1850–70 spurt) was financed by investment bankers, who raised long-term capital and lent it to factories; German industrialization was financed by universal bankers, intermediating between depositors and factories; and Russian industrialization was financed by the state, raising capital from taxpayers and foreign lenders to distribute it to banks and factories. The need for banks or state intervention reflected economies of scale. Economies of scale were characteristic of late industrialization; the period was also lacking in standards of honesty and in adequate mechanisms for the enforcement of contracts.

<sup>1</sup> In a more diversified survey (Verdier 2002), I review eight additional approaches: (1) developmentalism, (2) fixed costs, (3) social capital, (4) institutional commitment, (5) legal origins, (6) market segmentation, (7) curb market, and (8) global convergence.

<sup>2</sup> Gerschenkron 1962, p. 44.



Gerschenkron's theory is a two-step argument. The first step links backwardness to the timing of industrialization. The second step links this timing to the organization of the financial system – the relative degrees of market, bank, and state intermediation in the provision of long-term capital. The first step has been heavily criticized on the grounds that not all backward economies industrialized, nor did all do so in a “big spurt.”<sup>3</sup> The second step, the contribution of markets, banks, and the state to industrialization, has better stood the test of time. To be sure, the fit between the timing of industrialization and the type of credit system is far from perfect; there are cases (Italy and Austria) that exhibited the banking traits of late industrialization, despite the fact that their big spurt, by Gerschenkron's own admission, petered out. There is also Denmark, an economy that grew faster than Germany in the prewar decades and that developed universal banking, but without large-scale, capital-intensive industrialization.<sup>4</sup> Despite these limitations, historians have offered no generalizable alternative to Gerschenkron's argument.<sup>5</sup>

Zysman (1983) applied Gerschenkron's insights to the study of industrial policy in the postwar period. He proposed a threefold typology of banking systems, distinguishing between the French “state-led” model, the Anglo-Saxon “market-based” model, and the German-like “private-bank-organized” model.<sup>6</sup> This typology is very similar to Gerschenkron's triptych, with the difference that France, rather than Russia, is offered as the paradigm for state banking. The rationale for the choice of France reveals a key modification that political scientists brought to Gerschenkron's synthesis when they imported it. Of course there was a strong demand in postwar France for a quick rebuilding of the economy. But this was also the case almost everywhere in Europe. What made France paradigmatic in its credit policy was the specific institutional makeup of the French state – a “strong” state, in Zysman's terminology. For Gerschenkron, the

<sup>3</sup> Gerschenkron (1962, p. 234) himself grappled with the Bulgarian case, coining for the occasion the notion of “missed opportunity.” For a thorough review of new developments in growth time-series since Gerschenkron, see Sylla and Toniolo 1991.

<sup>4</sup> Bairoch's (1993, p. 8) data for 1890–1913 show a 2.3 percent annual growth in GNP per capita for Denmark against 1.7 percent for Germany. On Denmark, see Gerschenkron 1962, pp. 16, 361.

<sup>5</sup> Gerschenkron's proposition that industrial capital shortage made continental banking less specialized than British banking is widely shared among economic historians. In a recent review of Gerschenkron's contribution, Sylla and Toniolo (1991, p. 24) wrote that “the ‘loose’ version of Gerschenkron's paradigm still offers a good first insight into [the problem of European industrialization] and provides a powerful guide in framing the meaningful questions that scholars should ask.” Still, very few historians have endorsed Gerschenkron's synthesis. An exception is Jon Cohen (1967).

<sup>6</sup> For a similar argument, see Hu 1984. Knutsen (1997, 108) endorsed Zysman's typology in his study of postwar Norwegian banking.

state is a possible substitute for market failure that is *a priori* identically available across nations. For Zysman, and for Shonfield (1965) before him, states differ in their capacity to intervene in the economy in general, and in capital markets in particular, and this difference, very much like capital endowment in Gerschenkron's theory, is the fruit of a historical legacy.<sup>7</sup>

Gerschenkron left the causes of capital scarcity underexplored. Although it could be a shortage of capital in the national economy as a whole, the problem was most often a shortage of capital flowing to industry. Prussia is a case in point. No overall capital shortage existed there during the first half of the nineteenth century – in fact, Prussia exported capital. But this capital was not readily available to industry, as investors preferred government bonds.<sup>8</sup> To account for this fact, one needs to shift the emphasis away from the firms' demand for bank loans (in accounting terms, the assets side of a bank's balance sheet) toward the savers' supply of cash to banks (the liabilities side). Financial systems vary, I argue with Gerschenkron, because they enjoy differential access to capital. The cause of scarcity, however, does not lie in a temporary surge in the demand for capital, but in the sustained Malthusian regulation of centripetal capital flows in countries where local governments are politically powerful. In relation to the Gerschenkron–Zysman synthesis, the present study concurs that state structures matter as an explanatory variable. The question is: which aspect of state structures? Political scientists working in Zysman's footsteps have so far put much weight on the elusive notion of state autonomy and political insulation. Instead, I emphasize the intuitive and measurable notion of state centralization.

### Capital mobility

Capital is a factor of production, and factor mobility is a key parameter in political economy models. Such models typically seek to derive the regulatory outcome from a policy process in which firms, factors, and

<sup>7</sup> The notion that state allocation of credit is superior to market allocation in situations of industrial catchup has been qualified by Loriaux (1991) in a study of postwar France and Pérez (1997a) in a study of postwar Spain. The Gerschenkron–Zysman synthesis generally found greater support in studies of East Asian finance; see Wade 1985 and Woo 1991. Yet, even there, Haggard and Lee expressed caution about the risks of “predation and patrimonialism” (1993, p. 20). The works of Rosenbluth (1989) and Calder (1993) on the Japanese financial system sought to debunk the myth of the “strong” Japanese state. The debate critically hinges on the definition of state strength, a synthetic and tautology-prone concept.

<sup>8</sup> See Barrett Whale 1968, p. 11; Tilly 1967, p. 156; Schmoller 1904, vol. II, p. 182; Joseph Hansen 1906, vol. I, pp. 580–86; Beckerath 1954, pp. 7–14; Borchardt 1961.

politicians pursue their respective policy preferences.<sup>9</sup> Factor mobility usually enters the model as a parameter in the determination of economic actors' policy preferences. If mobile across sectors, capital merely exits from a sector that becomes unprofitable. In contrast, if capital is specific to a sector, it faces a choice between retooling the sector or lobbying for government support for that sector.

Some studies try to determine the causes of capital mobility or, inversely, capital specificity. This "asset-specificity" literature, as it is known, typically points to sectoral barriers to entry. Instances of entry barriers include sunk investment costs, R&D intensity, learning by doing, brand names, and patents.<sup>10</sup> In a study of Norwegian firms, Alt et al. argue that firms with large R&D expenditures create specific assets for the manufacture of products with no close substitutes, which are difficult to dispose of if there is no demand for the product. As a result, Alt et al. argue, R&D-intensive firms have a clear propensity to lobby for subsidies or market protection.<sup>11</sup>

The asset-specificity literature rests on a notion of capital that is made up of dissimilar elements. Capital comes in two forms: (1) *production* capital, which comprises machinery, stock, and the buildings that house them, as well as intangibles like patents, and (2) *financial* capital, referring to all financial assets, long and short. The asset-specificity literature does not deal with the dichotomy well. Either that literature shuns financial capital to concentrate its attention on production capital exclusively,<sup>12</sup> or, alternatively, it treats production and financial capital as separate factors of production, with the latter more mobile than the former.<sup>13</sup>

Treating finance as an intermediate sector between savers and borrowers brings clarity to the analysis. Physical capital is, almost by definition, fixed. Unbolting a piece of machinery for relocation is a costly business

<sup>9</sup> For a useful typology of models, see Rodrik 1995.

<sup>10</sup> See Frieden 1991, Hiscox 1997, and Alt et al. 1999.

<sup>11</sup> Alt et al. 1999, 109. The literature also identifies political determinants of capital mobility. Alt and Gilligan (1994) argue (though do not show) that the electoral rule shapes the scope of public policy and the degree to which a firm will invest in specific assets. If members of parliament are tied to single-member districts, they provide the protection that keeps firms tied to a specific location. If they do not represent geographically based constituencies, but are elected from a national list of candidates, they may still provide protection, yet not of the kind that ties firms to a location. I have argued elsewhere that factor specificity is a sociopolitical construct, reflected in asset holders' membership in networks (Verdier 1995).

<sup>12</sup> See, for instance, Frieden and Rogowski 1996, p. 27.

<sup>13</sup> For instance, Frieden (1991, 438) writes: "it is consonant with the specific-factors approach to assume that . . . financial capital is mobile among industries, while physical capital is industry-specific." Frieden further separates financial capital into bonds and debt, said to be mobile across countries, and stocks, which are less so (ibid., 429).

proposition with limited empirical relevance. What gives a country a long-term comparative advantage in capital goods is not the stock of physical capital *per se*, which becomes obsolescent in ten or twenty years, but the flows that this stock generates in the form of savings and depreciation allowances. Savings are the share of factor reward that is not consumed; depreciation allowances are the share of revenues set aside to pay for fixed costs. These two flows are a function of two variables, economic growth and policy regulation. A fast-growth economy releases more savings and capital allowances than a slow-growth economy. Holding growth constant, the government can encourage savings and capital allowances through fiscal incentives and the regulatory promotion of a competitive and well-developed financial market.

In the absence of a financial market, savers, investors, and creditors have concentrated stakes in only a few firms and even fewer sectors; they cannot easily exit a money-losing investment in specific (low-liquidation-value) assets, nor enter a profitable one, making lobbying for the regulatory protection of that investment a plausible option. In contrast, in the presence of a financial market, investors and creditors each own a diversified portfolio of financial instruments.<sup>14</sup> Little lobbying is likely to come from a large number of small claimants; they are more likely to reduce – or write off – a stake in stagnating sectors and concentrate future investments in growth sectors.<sup>15</sup> The initiative to lobby, if any, is more likely to come from management (and labor), whose loyalty to the firm is higher than that of the investors and the bankers, in order to prevent both the latter from walking away from the firm.<sup>16</sup>

This financial approach provides a better empirical referent to the notion of capital mobility than the asset-specificity literature. That “an automobile factory cannot costlessly be converted into a brewery,” to use

<sup>14</sup> The argument was first made by Schonhardt-Bailey 1991 and Schonhardt-Bailey and Bailey 1995. They argue that financial capital can effortlessly cross sectoral boundaries only in the presence of a well-functioning corporate securities market. Absent such a market, individuals willing to adjust their portfolios – that is, to liquidate assets in declining sectors and/or acquire some in rising ones – face discouraging transaction costs.

<sup>15</sup> Bankers, unlike equity holders, may be few enough to overcome the collective action dilemma. However, in the presence of a broad capital market, their claims typically take the form of senior debt, secured by the firm’s capital and unlikely to induce loyalty in the firm or the sector.

<sup>16</sup> This is a standard result in models with multiple factors, some of which are mobile across sectors, others specific. The specific factor’s marginal productivity increases with an inflow of mobile factors into the specific factor’s sector of employment and declines with an outflow. This is also a central feature of the core-periphery model of chapter 2. For an application to cross-country capital flows, see Hiscox 2000.

Frieden's formulation, would indicate that capital is specific only in a non-monetary economy.<sup>17</sup> In a monetary economy, the liquidation value of the former could in theory suffice to pay for the latter. More realistically, the profits generated by car manufacturing may be invested in the construction of a brewery if brewing is expected to be more profitable than the assembling of cars. The same outcome is instantaneously reached in the presence of a financial market through institutional investors modifying their relative holdings of stocks in each sector. The induced change in relative share values allows the rising sector to incur new debt, while forcing the declining sector to reimburse past debt.

One is reminded of Bagehot's description of the functioning of Lombard Street 125 years or so ago:

Political economists say that capital sets towards the most profitable trades, and that it rapidly leaves the less profitable and non-paying trades. But in ordinary countries this is a slow process, and some persons who want to have ocular demonstration of abstract truths have been inclined to doubt it because they could not see it. In England, however, the process would be visible enough if you could only see the books of the bill brokers and the bankers . . . If the iron trade ceases to be as profitable as usual, less iron is sold; the fewer the sales the fewer the bills; and in consequence the number of iron bills in Lombard Street is diminished. On the other hand, if in consequence of a bad harvest the corn trade becomes on a sudden [*sic*] profitable, immediately "corn bills" are created in great numbers, and if good are discounted in Lombard Street. Thus English capital runs as surely and instantly where it is most wanted, and where there is most to be made off of it, as water runs to find its level.<sup>18</sup>

Only if the financial system is undeveloped – in "ordinary" countries, as Bagehot calls them – is the transfer of resources from declining to rising sectors dependent on whether entry by new firms is or is not possible. If entry is not limited (low asset specificity), then financial capital crawls to growth sectors in the form of direct investment financed through profit retention by non-financial companies. If entry is limited (high asset specificity), then financial capital is sector-bound and capital mobility approaches zero. There, low mobility reflects the ordinarily low liquidation value of physical assets or the usually high conversion costs of these assets.

The relationship between financial market development and capital mobility with respect to a given sector is thus quasi-linear. Holding growth constant, financial development can be said to be, without significant loss of generality, a necessary condition for capital mobility.

<sup>17</sup> Frieden 1991, 436.      <sup>18</sup> Bagehot 1991, p. 6.

### Information asymmetry

Current microeconomic applications of information asymmetry to banking illuminate the choice between direct and intermediate finance along with providing a rationale for the existence of banks. This literature justifies the existence of a close bank–firm relationship for firms that are small or young. It can also be used to rationalize state promotion of non-profit banks. Yet, information asymmetry only takes us so far. It justifies the existence of diverse financial institutions, but is silent on the relative occurrence of each.

Entrepreneurs are better informed than investors about the quality of the projects they want to develop. This is a classic adverse selection problem, which causes the price of projects to be evenly low irrespective of quality.<sup>19</sup> As a result, only the bad projects get external finance; entrepreneurs with good projects are better off financing them themselves. This inefficient outcome sets the stage for the role of monitor. An individual who monitors a borrower – by screening projects, or preventing opportunistic behavior, or performing ex-post audits – could mitigate the adverse selection problem. Either this monitor could be an analyst, certifying to investors that a borrower is sound, or he could be a sophisticated investor, whose stake in the borrower's project would signal that the project is sound, or a bank, lending to the borrower its customers' deposits. How can we make sure that the monitor is doing the job properly? Reputation suffices to discipline the analyst. The personal stake signals the sophisticated investor's credibility. Diversification into a large number of independent projects guarantees the solvency of the bank. If there are scale economies in monitoring projects, as Diamond (1984) claims, then the bank is the most efficient monitor. Therefore, banks exist, according to Diamond, in order to serve as *delegated monitors*.

Since markets and banks coexist, it is worth asking in what circumstances entrepreneurs will prefer direct finance to intermediate debt (commercial paper, bonds, and equity are direct finance; loans are intermediate debt). Two complementary solutions are present in the microeconomics literature.<sup>20</sup> Both assume that direct debt is less expensive than intermediate debt – a fact that is verified in practice. The first model, by Diamond (1991), rests on a firm's track record. New borrowers borrow from banks initially. If, in the process, they acquire a good credit record, their reputation eliminates the need for monitoring. They may issue debt directly, without using an intermediary. Lower-rated borrowers, in

<sup>19</sup> The classic formulation is Akerlof's (1970) used car dealer, transplanted to finance by Stiglitz and Weiss (1981).

<sup>20</sup> I draw on the excellent textbook by Freixas and Rochet (1998, ch. 2).

contrast, will still be suspected of bad credit-worthiness and thus remain dependent on bank loans and monitoring. The very-low-rated ones will be screened out. In the second model, by Hölmstrom and Tirole (1997), the firms overcome the moral hazard problem through partial self-financing. By investing its own resources in its own project (that is, by having a large “capital”), the firm credibly signals its private information on the high quality of the project along with its commitment to make it work. Uninformed investors are willing to advance the residual funding without monitoring. In contrast, if the firm is capital-constrained and unable to self-finance part of the project, it must fall back on bank monitoring and make do with dearer intermediate finance.

Despite their differences and respective limitations, the two models concur with casual observation of reality. Information asymmetry creates a *pecking order* among firms that compete for external funding.<sup>21</sup> Firms that get access to money markets tend to be old and to have a good track record, as Diamond’s analysis suggests. This fits quite nicely with the common idea that a firm’s funding requirements go through a lifecycle: startups have to rely essentially on internal funds, then on bank assistance as they grow larger, and finally on commercial paper and equity once they are sufficiently established to enable individuals to evaluate their earnings with a modicum of confidence.<sup>22</sup> Furthermore, as Hölmstrom and Tirole argue, firms that get access to markets tend to be large and well capitalized. Firms that are small and collateral-poor, in contrast, typically fall back on bank loans. In a period of credit crunch, when banks find themselves to be overextended and start curbing lending, the small, poorly capitalized firms are hit the hardest. The large firms can either renegotiate their loans or go directly to the markets.<sup>23</sup> In sum, both reputation and capital are substitutes for monitoring. In fact, reputation and capital tend to coincide.<sup>24</sup>

Small and young firms are particularly at risk in periods of credit crunch, when banks rein in loans. Firms can insure against this risk, Petersen and Rajan (1994) argue, by entering a long-term, exclusive relationship with a bank. *Relationship banking* – a durable relationship spread across a wide array of products – informs the bank about the credit-worthiness of the firm, thus reducing the cost of lending. The firm commits itself to remain a client of the bank over the long run, and the

<sup>21</sup> The phrase is Calomiris’ (1995).

<sup>22</sup> See Lamoreaux 1994, p. 154 and Calomiris 1995, p. 262.

<sup>23</sup> See Gertler and Gilchrist 1994.

<sup>24</sup> With the possible exception of banks, which until recently were able – but are not allowed any more – to operate on very low capital bases. The strong regulatory harness under which banks operated may have been responsible for this anomaly.

bank smoothes out the cost of capital to the firm over the firm's lifecycle. The bank subsidizes the firm when young and is repaid later. The bank also tides the firm over during credit crunches.

However, borrowers cannot credibly commit to relationship banking in the long run. They have an interest at some later stage, once they have established a track record with their initial bank, in breaking the relationship with the bank and borrowing from competing lenders, who can thus take advantage of the initial bank's efforts. Unable to recoup its initial investment in information gathering, the initial bank abstains from making that investment in the first place.

This problem of time inconsistency has several institutional solutions. A first is the existence of a local banking monopoly, able to enforce exclusivity over the long run – this may account for restrictions on branch banking of the *unit banking* type.<sup>25</sup> A second related solution is joint membership in a social network – this may account for the existence of *credit cooperatives*, in which members are liable for any loan on which the cooperative defaults and thus have an incentive to monitor their peers.<sup>26</sup> A third solution is to allow the bank to take an equity position in the firm, enabling the bank to share the surplus to which its lending contributed – this may account for the existence of *universal banking* (that is, universal banking for the small, of course). It is difficult to build an information asymmetry argument that would make universal banking pertinent to large firms. Large firms need no bank monitoring, unless they are denied access to markets for reasons unrelated to information asymmetry.<sup>27</sup>

The information asymmetry paradigm provides solid microeconomic foundations for the study of financial institutions. It provides a unified explanation for the diversity of financial intermediaries based on a pecking order between borrowers: large and respectable borrowers directly tap the markets, whereas medium- and less-capitalized firms borrow from intermediaries. Small and undercapitalized borrowers are willing to sacrifice their long-term independence and commit to an exclusive relationship with a bank in exchange for steady financial support. The very small put up with the collectivist atmosphere of a local cooperative. The further one

<sup>25</sup> See Petersen and Rajan 1995.

<sup>26</sup> See Banerjee et al. 1994. Still another solution, according to Haggard and Lee (1995), is a "strong" state. This is how they describe the functioning of capital markets of newly industrialized countries in the Far East. Decisions are made hierarchically and firms are monitored and coordinated by bureaucrats. Bureaucratic coordination helps economize on communication expense and reduce uncertainty.

<sup>27</sup> For an opposite view, see Calomiris 1995. Calomiris argues that project diversification and scale economies in monitoring allowed the big German banks to price debt lower than English direct finance, even for the largest firms.



moves down the hierarchy, the more pervasive and intrusive monitoring gets.

However, the information asymmetry literature says little about the relative importance of direct and intermediate debt, of center and local banks, of specialized and universal banks, or of banks and cooperatives. The size and age of firms are not good determinants of what type of funding is obtained, for it is partly determined by what kind of funding is available. Furthermore, many categories overlap. Deutsche Bank – a deposit bank – monitored firms in Germany at the turn of the century in the same way that J. P. Morgan – an investment bank – did in the United States.<sup>28</sup> Last, and most importantly, microeconomic efficiency operates within the limits of *exogenous constraints*. How else can we explain that historical accounts of bank–firm relations under turn-of-the-century German and postwar Japanese universal banking systems so closely match the description of relationship banking, even though the firms and banks involved in these relationships were large enough to qualify for direct finance?

I argue in the next chapter that the principal exogenous constraint was political. It is not that politicians were invented to ruin market efficiency – quite the contrary. But freely functioning financial markets generated externalities that threatened the stability of political institutions, something which politicians were concerned about.

### Conclusion

The three foregoing approaches help situate the one offered in what follows. Gerschenkron and his followers explained variations in financial organization by focusing on the temporary capital scarcity provoked by surges in the demand for loans. Instead, I emphasize the long-term scarcity caused by the regulation of competition between various types of banks vying for cash. The asset-specificity approach seeks to explain capital mobility without the help of a financial sector. Instead, I conceptualize capital mobility as a function of financial development. The information asymmetry approach offers a rationale for bank variety, but cannot derive the relative importance assumed by each variety. I remedy this problem by adding structure to the information asymmetry approach.

<sup>28</sup> Contrast Calomiris' (1995) account of monitoring by the *Berlin Großbanken* with de Long's (1991) account of J. P. Morgan. The difference corresponds with the distinction between "intermediation" and "certification" made by Hölmstrom and Tirole (1997, 675).